

Comparisons of Job Characteristics

Focus Occupation: **Chemical Engineers (17-2041)**

Associated Occupation: **Environmental Engineering Technicians (17-3025)**

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 66

Focus Occupation: Chemical Engineers (17-2041)

Associated Occupation: Environmental Engineering Technicians (17-3025)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Engineering and Technology	5.7	15.8	24.1	>>	Current knowledge level is likely more than sufficient
Design	5.2	11.1	15.2	>>	Current knowledge level is likely more than sufficient
Building and Construction	4.0	10.6	5.7	<<	Extensive education and/or training may be required
Physics	4.3	10.2	16.9	>>	Current knowledge level is likely more than sufficient
Law and Government	5.9	9.5	7.9	<	Expanded education and/or training may be required
Biology	3.7	6.8	9.6	>>	Current knowledge level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 61

Focus Occupation: Chemical Engineers (17-2041)

Associated Occupation: Environmental Engineering Technicians (17-3025)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Reading Comprehension	10.7	16.3	13.4	<	A higher skill level may be required
Critical Thinking	10.8	14.5	15.1	0	Current skill level may be sufficient
Active Learning	8.7	12.6	13.4	0	Current skill level may be sufficient
Mathematics	6.2	11.3	14.7	>>	Skill level is likely more than sufficient
Quality Control Analysis	5.9	9.7	9.6	0	Current skill level may be sufficient

Management of Material Resources	3.7	6.8	6.8	0	Current skill level may be sufficient
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The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities	Similarity of Focus Occupation to Associated Occupation: 89
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Focus Occupation: Chemical Engineers (17-2041)
Associated Occupation: Environmental Engineering Technicians (17-3025)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Written Comprehension	11.0	16.6	15.0	<	Some improvement in abilities may be required
Problem Sensitivity	11.1	15.9	14.8	0	Current ability level may be sufficient
Near Vision	11.1	14.7	12.2	<	Some improvement in abilities may be required
Deductive Reasoning	10.6	14.5	15.2	0	Current ability level may be sufficient
Inductive Reasoning	10.2	13.6	14.6	0	Current ability level may be sufficient
Information Ordering	9.9	13.3	15.1	>	Current ability level is likely sufficient
Category Flexibility	9.0	11.8	15.2	>>	Current ability level is likely more than sufficient
Mathematical Reasoning	6.3	10.6	14.2	>>	Current ability level is likely more than sufficient
Number Facility	6.3	10.6	13.4	>	Current ability level is likely sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common	Similarity of Focus Occupation to Associated Occupation: 91
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Focus Occupation: Chemical Engineers (17-2041)
Associated Occupation: Environmental Engineering Technicians (17-3025)

Work Activities	Exclusivity of Activity
Analyze scientific research data or investigative findings	27
Analyze technical data, designs, or preliminary specifications	47
Calculate engineering specifications	64
Communicate technical information	4
Create mathematical or statistical diagrams or charts	43
Develop plans for programs or projects	31
Estimate cost for engineering projects	69
Evaluate engineering data	60
Examine engineering documents for completeness or accuracy	62
Explain complex mathematical information	30
Follow manufacturing methods or techniques	73

Follow safe waste disposal procedures	50
Inspect facilities or equipment for regulatory compliance	51
Prepare technical reports or related documentation	22
Read technical drawings	7
Test equipment as part of engineering projects or processes	67
Understand engineering data or reports	48
Use chemical testing or analysis procedures	54
Use government regulations	44
Use hazardous disposal techniques	80
Use hazardous materials information	35
Use pollution control techniques	62
Use scientific research methodology	21
Use technical information in manufacturing or industrial activities	67
Use technical regulations for engineering problems	61

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 85

Focus Occupation: Chemical Engineers (17-2041)

Associated Occupation: Environmental Engineering Technicians (17-3025)

Tools and Technologies	Exclusivity
Business function specific software	1
Chromatographic measuring instruments and accessories	16
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Gas analyzers and monitors	10
Industry specific software	1
Laboratory centrifuges and accessories	13
Laboratory decanting and distilling and evaporating and extracting equipment and supplies	19
Laboratory mixing and stirring and shaking equipment and supplies	19
Pharmaceutical industry machinery and equipment and supplies	31
Pipettes and liquid handling equipment and supplies	16
Pumps	9
Spectroscopic equipment	10
Viewing and observing instruments and accessories	4
Water treatment and supply equipment	21

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.